

Work Order ID 149947***149947***

Page 1

Monday, August 15, 2016 1:59:27 PM

Item ID: D6101-005 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle Billet
Start Date: 8/15/2016 Start Qty: 20.00 ***20*** Cust Item ID:
Required Date: 8/29/2016 Req'd Qty: 20.00 ***20*** Customer:

Reference:

DAS

13

9-89

Approvals: Process Plan: Date: AUG 15 2016 Tooling: Date: Run Start ***NR1***
QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D6101	Rev B

100		0.00							DAS 13 9-89
-----	--	------	--	--	--	--	--	--	-------------------

100

Purchasing

Purchasing

PURCHASING

Memo

Issue P/O: 33353

a) Description: Alluminum billet

b) 5.00" x 8.250" x 2.50" thick

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Grain direction along 5.00" length

e) Material: 7075-T7351 (QQ-A-250/12)

f) Material certification required

110

110

Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

Memo

Ensure material certification is attached

20x 8p 16-9-7.

Work Order ID 149947***149947***

Page 2

Monday, August 15, 2016 1:59:27 PM

Item ID: D6101-005 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle Billet
Start Date: 8/15/2016 Start Qty: 20.00 ***20*** Cust Item ID:
Required Date: 8/29/2016 Req'd Qty: 20.00 ***20*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00				<u>20</u>	<u>0</u>		DAS 14 9-89 16/09/08
120									
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6101								
130	Identify as per dwg & Stock Location: <u>MAT040</u>	0.00				<u>20</u>	<u>0</u>		DAS 14 9-89 16/09/08
130									
Packaging	Memo	0.03							
Packaging	LOCATION: MAT041								
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.33							
Quality Control									

DAS
21
9-89
SEP 08 2016
DAS
21
9-89
SEP 08 2016

Picklist Print

Monday, August 15, 2016 1:59:25 PM

Work Order ID: 149947

149947

Parent Item: D6101-005

D6101-005

Parent Item Name: Saddle Billet

Start Date: 8/15/2016

Required Date: 8/29/2016

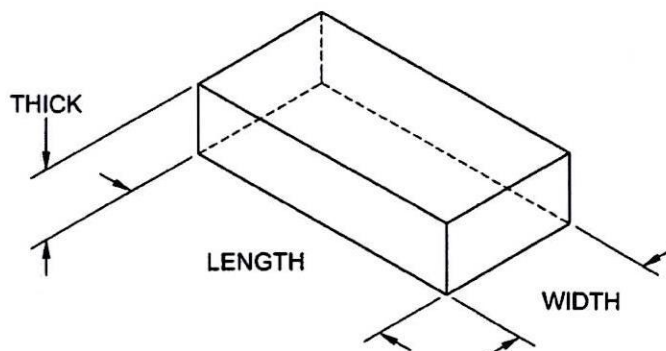
Start Qty: 20.00

Required Qty: 20.00

Comments: IPP A: 01.05.04New IssueEC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-005P *D6101-005P* 7075-T7351 8.25X5.0X2.5		Purchased	No			110	Each	0.0000	1 **	20 <u>20x 8/16-9-7</u>			

SPECIFICATION CONTROL DRAWING



AUG 15 2016

DAS
13
9-89

W/O: 149947

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

RELEASED
09/07/15/W

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO33353**

Purchase Order Date 8/17/2016

PO Print Date 8/17/2016

Page Number 1 of 3

Order From :

VU-MET002

Ship To : DART AEROSPACE LTD

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

AUG 18 2016

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via:

Yours ppd

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

USD

FOB

Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	D6101-003P	7075-T7351 2X6.25X7.875	9/1/2016 Yes 9/1/2016		30.00 Each	\$35.29	\$1,058.70
AS PER DWG D6101 REV. B B149946 SIZE: 7.875" X 6.250" X 2.00" THICK GRAIN DIRECTION ALONG 7.875" LENGHT MATERIAL: 7075-T7351 QQ-A-250/12 TOLERANCE AS PER QUOTE +.030"/-.000"							
Line Total:							\$1,058.70
2	D6101-005P	7075-T7351 8.25X5.0X2.5	9/1/2016 Yes 9/1/2016		20.00 Each	\$36.20	\$724.00
AS PER DWG.D6101 REV.B B149947 SIZE: 5.00" X 8.250" X 2.50" THICK GRAIN DIRECTION ALONG 5.00" LENGHT MATERIAL: 7075-T7351 QQ-A-250/12 TOLERANCE AS PER QUOTE +.030"/-.000"							

Note:

8/17/2016

8/16-9-7
C



A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3067298

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 02-SEP-16	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 3067298-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No 4465715	Line No 2	Item No 752241.MO	Description 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 8.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12				
Purchase Order No 33353		Part Number YOUR ITEM NUMBER: D6101-005		Ordered Qty 20.00 PCS		Invoice Qty 20.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS Sp/16-9-7.					
Delivery No. 120521188	Mill KAISER ALUMINUM	Heat Number 	Mech Id	PCS 20	Width (IN)	Length (IN)	Shipped Qty(LBS) 213.3121

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

Date Printed: 02-SEP-2016 05:55:05 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

for credit.			
Reviewed by Authorized Castle Metals Representative:		Date:	Name:

Chris Galt

SEP 02 2016



Sp16-9-7.

SHIP TO:

A M CASTLE & CO
3050 SOUTH HYDRAULIC
WICHITA, KS 67216

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

SOLD TO:

AM CASTLE & CO- SOLD TO
1420 KENSINGTON RD
SUITE 220
OAK BROOK, IL 60523

CERTIFIED TEST REPORT

Serial Number
4403443

CUSTOMER PO NUMBER: 344049		WORK PACKAGE:		CUSTOMER PART NUMBER: 752241		SHIP RUN/LOAD: 103437/9		GOVT CONTRACT NUMBER:			
KAISER ORDER NO: 1199092		LINE ITEM: 1	SHIP DATE: 6-JAN-2016	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: KaiserSelect Plate				
WEIGHT SHIPPED: 5412 LB		QUANTITY: 3 PCS EST.		TRUCK B/L #: 2057936		GAUGE: 2.5000 IN (63.5000 MM)		DIAMETER/WIDTH: 48.500 IN (1231.9 MM)		LENGTH: 144.500 IN (3670.3 MM)	

MHU 1960912: LOT 159738B4: 1 pieces;
MHU 1960921: LOT 782747AD: 2 pieces;

DAS
14
9-29

1609108

Certified Specifications

AMS 4078/RevJ
ASTM B 209/Rev14
BSS 7055/RevB
DPS 4.713/RevAK
MMS 159/RevT

AMS-QQ-A-250/12/RevA
ASTM B 594/Rev13
CMMP 025/RevU
GAMPS 9101/RevB/AmdSCN1
PS 21211/RevM

AMS-STD-2154/RevA
BAC 5439/RevJ
CSTI 006/RevE
GSS16100/RevG/Amd1

Test Code: 4297

Test Results

Lot: 159738B4 Cast 108 Drop 25 Ingot 5 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	68.8 : 69.0 (474 : 476)	57.6 : 57.7 (397 : 398)	11.4 : 11.9

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.1 Min	40.4 Max
(MS/M) :	23.3 Min	23.4 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.08	0.19	1.5	0.05	2.5	0.20	5.7	0.03	0.01	0.01	TOT 0.05



KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4403443

Lot: 782747A0 Cast 108 Drop 25 Ingot 5 Parent Lot: 159738B4 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper:	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	69.0 : 69.6 (476 : 480)	58.0 : 58.8 (400 : 405)	11.2 : 11.5

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	39.7 Min	40.4 Max
(MS/M) :	23.0 Min	23.4 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.08	0.19	1.5	0.05	2.5	0.20	5.7	0.03	0.01	0.01	TOT 0.05

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-15413B R 6

AMS 4078, AMS QQ-A-250/12, AMS STD-2154, A

STM B209, ASTM B594, BS

S 7055, CMMP 026, CSTI 006, DPS 4.713, GAMP

S 9101, MMS 159, PS 212

11

TEST NOTES

Metal represented by this test report was 100% Type I.
(Immersion) ultrasonically tested from one side with 3mm
dead zones top and bottom and meets the Class A and Class B
requirements of all specifications referenced on this test
report. No surface marking of sonic indications is
performed.



KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4403443

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC (Kaiser), is ISO 9001:2008/AS9100C certified and hereby certifies that all material shipped under this order:

* has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements.

* was melted in the United States of America or a qualifying country per DFARS 225.672-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.

* has been thermally processed in compliance with AMS 2772, where applicable.

* is mercury free, within the limits of detection of ASTM E1251 (< 1 ppm).

* is in compliance with RoHS 2, European Union Directive 2011/65/EU.

* is in compliance with and regularly monitors any updates to the European Chemical Agency, ECHA, REACH regulations, (EC) n°1907/2006.

* is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.



JAMES HEMENWAY, LABORATORIES SUPERVISOR



MATERIAL RECEIPT INSPECTION FORM

PO - BATCH NO 33353/149947

THICKNESS REQUIRED 2.500
 THICKNESS RECEIVED 2.525
 SHEET SIZE REQUIRED
 SHEET SIZE RECEIVED

MATERIAL D6101-B05
 DATE 16/09/08
 MATERIAL CERT REQD 20
 QUANTITY INSPECTION 20
 QUANTITY RECEIVED 20

COMMENTS

HEAT# 782747AD
 D6101-B05
 3075-17351
 2.520
 3149947

DESCRIPTION	Y/N	Check	NCR
SURFACE DAMAGE	Y	(X)	
CORRECT FINISH	Y	(X)	
CORROSION	Y	(X)	
CORRECT GRAIN DIRECTION	Y	(X)	
CORRECT MATERIAL	Y	(X)	
CORRECT THICKNESS	Y	(X)	
PHOTO REQUIRED	Y	(X)	
CORRECT MATERIAL	Y	(X)	
CORRECT REF # TO LINK CERT	Y	(X)	
CORRECT MATERIAL IDENTIFICATION	Y	(X)	
CORRECT MAT ON THE MATERIAL	N	(X)	
DON'T HAS MATERIAL PL QUIRE	Y	(X)	
ENGINEERING SIGN OFF	Y	(X)	
DON'T HAS REQUIRE AN	Y	(X)	
EXTRUSION REPORT	Y	(X)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK
 RECORD RESULTS BELOW

TYPE OF MATERIAL	SIZE OF TEST SAMPLE	HARDNESS DUROMETER READING
HRC		
HRB		
DUR A		
DUR B		

Tests located in the Quality Office

ENGINEERING SIGNOFF (if required)
 SIGNED OFF BY
 DATE

INSPECTED BY
 DATE

16/09/08
 14
 8-89

QC 18 INSPECTION

Attach this inspection sheet with the corresponding material cert and return to be scanned and received in

FORMS Quality Assurance Approved (AMTIF Material Receipt Inspection Form RevB)

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

1. VERIFY STOCK TO DART PURCHASE ORDER
2. MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
3. VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, ETC.
4. VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
5. VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
6. REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

1. VERIFY TO DART SUPPLIED DRAWING
 2. SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
 3. USING PORTABLE HARDNESS TESTER, VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
 4. VERIFY THAT MATERIAL CERTS MATCH TO WHAT'S CALLED UP ON THE DART DRAWING
- AFTER MATERIAL PASSES INSPECTION**
5. HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20PCS FOR FULL INSPECTION
 6. INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

1. VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
2. INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
3. INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
4. IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE 2, ...) AND W/O# AND PO#
5. RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE OC COORDINATOR BEFORE GOING FURTHER